



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

647.2511

Job Sheet 189237



Part No: 647.2511

Job Qty: 22 pcs

Part Name: Nut



Part Weight: 0 lbs

Status: New

Priority: High

Job Created: 1/22/19

Job Tracking No:

Due Date: 2/1/19

Created By: Jason Leroux

Type: SOLD

Description:

Note: DWG REV A IPP REV:A NEW ISSUE 12-10-22 JLM VERIFIED BY:DD

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier	Sign-off
					Setup Hrs	Run Hrs		
100	Doosan - 1	22 pcs	2/1/19	2/1/19	0.00	10.48	Doosan - 1	
110	QC 2	22 pcs	2/1/19	2/1/19	0.00	0.00	QC 2 - 1	
							QC 2 - 12	
							QC 2 - 14	
							QC 2 - 17	
							QC 2 - 19	
							QC 2 - 2	
							QC 2 - 20	
							QC 2 - 22	
							QC 2 - 23	
							QC 2 - 25	
							QC 2 - 32	
							QC 2 - 33	
							QC 2 - 35	
							QC 2 - 38	
							QC 2 - 39	
							QC 2 - 4	
							QC 2 - 40	
							QC 2 - 44	
							QC 2 - 45	
							QC 2 - 48	
							QC 2 - 49	
							QC 2 - 50	
							QC 2 - 51	
							QC 2 - 52	
							QC 2 - 54	
							QC 2 - 56	
							QC 2 - 57	
							QC 2 - 62	
							QC 2 - 63	
							QC 2 - 8	



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL.: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

Container No: S154697



Part: 647.2511

Job No: 189237

Serial No/Batch: S154697

Revision:

Inspector:

Exp Date:

Instructions:

Date: 02/19/19

Plex 1/22/19 8:55 AM dart.leroux.jasor

1/22/2019

[Dart Hawkesbury] Job Sheet - Leroux, Jason

140	QC 8	22 pcs	2/1/19	0.00	0.00	QC 8 - 12	
						QC 8 - 14	
						QC 8 - 17	
						QC 8 - 20	
						QC 8 - 25	
						QC 8 - 3	
						QC 8 - 32	
						QC 8 - 33	
						QC 8 - 35	
						QC 8 - 38	
						QC 8 - 39	
						QC 8 - 4	
						QC 8 - 44	
						QC 8 - 45	
						QC 8 - 49	
						QC 8 - 58	
						QC 8 - 8	D.A 19-02-19
						QC 8 - 9	
						QC 8 - 68	
						QC 8 - 67	
						QC 8 - 1 (A)	
150	Outsource - 17 - Passivate	22 pcs	2/1/19			GRO002-VC	7 07/02/19
160	Packaging 2-1 - Recelve - B4B	22 pcs	2/1/19	0.00	0.00	Packaging 2 - 1 - B4B	
						Packaging 2 - 2 - B4B	
						Packaging 2 - 3 - B4B	
						Packaging 2 - 5 - B4B	
						Packaging 2 - 4 - B4B	
						Packaging 2 - 6 - B4B	
						Packaging 2 - 7 - B4B	
						Packaging 2 - 8 - B4B	
						Packaging 2 - 9 - B4B	
						Packaging 2 - 10 - B4B	
						Packaging 2 - 11 - B4B	
						Packaging 2 - 12 - B4B	
						Packaging 2 - 13 - B4B	
						Packaging 2 - 14 - B4B	
						Packaging 2 - 15 - B4B	
						Packaging 2 - 16 - B4B	
						Packaging 2 - 17 - B4B	
						Packaging 2 - 18 - B4B	
						Packaging 2 - 19 - B4B	
						Packaging 2 - 20 - B4B	
						Packaging 2 - 21 - B4B	
						Packaging 2 - 22 - B4B	
						Packaging 2 - 23 - B4B	
						Packaging 2 - 24 - B4B	
						Packaging 2 - 25 - B4B	
						Packaging 2 - 26 - B4B	
						Packaging 2 - 27 - B4B	
						Packaging 2 - 28 - B4B	
						Packaging 2 - 29 - B4B	
						Packaging 2 - 30 - B4B	
						Packaging 2 - 31 - B4B	
						Packaging 2 - 32 - B4B	
						Packaging 2 - 33 - B4B	
						Packaging 2 - 34 - B4B	
						Packaging 2 - 35 - B4B	
						Packaging 2 - 36 - B4B	
170	QC 5	22 pcs	2/1/19	0.00	0.00	QC 5 - 10	

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1/22/2019

[Dart Hawkesbury] Job Sheet - Leroux, Jason

					QC 5 - 12	
					QC 5 - 17	
					QC 5 - 18	
					QC 5 - 19	
					QC 5 - 22	
					QC 5 - 24	
					QC 5 - 3	
					QC 5 - 38	
					QC 5 - 42	
					QC 5 - 43	
					QC 5 - 49	
					QC 5 - 51	
					QC 5 - 58	
					QC 5 - 68	DAS FEB 27 2019 68
					QC 5 - 9	9-89
					QC 5 - 50	
					QC 5 - 30	
180	Packaging 3-1 - Stock - B4B	22 pcs	2/1/19	0.00	0.00	Packaging 3 - 1 - B4B
						Packaging 3 - 2 - B4B
						Packaging 3 - 3 - B4B
						Packaging 3 - 4 - B4B
						Packaging 3 - 5 - B4B
						Packaging 3 - 6 - B4B
						Packaging 3 - 7 - B4B
						Packaging 3 - 8 - B4B
						Packaging 3 - 9 - B4B
						Packaging 3 - 10 - B4B
						Packaging 3 - 11 - B4B
						Packaging 3 - 12 - B4B
						Packaging 3 - 13 - B4B
						Packaging 3 - 14 - B4B
						Packaging 3 - 15 - B4B
						Packaging 3 - 16 - B4B
						Packaging 3 - 17 - B4B
						Packaging 3 - 18 - B4B
						Packaging 3 - 19 - B4B
						Packaging 3 - 20 - B4B
						Packaging 3 - 21 - B4B
						Packaging 3 - 22 - B4B
						Packaging 3 - 23 - B4B
						Packaging 3 - 24 - B4B
						Packaging 3 - 25 - B4B
						Packaging 3 - 26 - B4B
						Packaging 3 - 27 - B4B
						Packaging 3 - 28 - B4B
						Packaging 3 - 29 - B4B
						Packaging 3 - 30 - B4B
						Packaging 3 - 31 - B4B
						Packaging 3 - 32 - B4B
						Packaging 3 - 33 - B4B
						Packaging 3 - 34 - B4B
						Packaging 3 - 35 - B4B
						Packaging 3 - 36 - B4B
190	QC 21 - SA	22 pcs	2/1/19	0.00	0.00	QC 21 - SA - 21
						QC 21 - SA - 70

Part Op 100 - (Doosan Lathe) 1- Turn as per Folio FB144 AND DWG DWG Rev: _____ FOLIO Rev: _____ -Deburr per dwg
 Descriptions: ***CHECK THREADS USING GO/ NO GO GAUGE*****

110 - (QC2- Inspect parts off machine FAI/FAIB)

140 - (QC8- Inspect parts - second check) 100% CHECK,CHECK ALL DIMENSIONS AND THREAD FIT

150 - Issue P/O: 012649 Pasivate as per MIL-S-5002 TYPE 6 Certificate of conformaty is required

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160 - (Receive & Inspect for Damage & Mat'l Certs) Ensure certificate of conformity is attached
 170 - (QC5- Inspect part completeness to step on W/O)
 180 - (Identify as per dwg & Stock Location: _____)
 190 - (QC21- Final Inspection - Work Order Release)

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
M17-4-H1150-R1.000	17-4 SS Round Bar 1.000"	1.1000 ft (.05 ea)	100-Doosan - 1	S029729

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
100-Doosan - 1	M17-4-H1150-R1.000	1	3	0

Part Specifications

Spec No	Description	Target/Tolerance	Limits	Type	Special Comments
1	Nut	0.875Inches ± 0.010	0.885 0.865		
2	Nut	0.530Inches ± 0.010	0.540 0.520		
3	Nut	90.000Degrees ± 0.500	90.500 89.500	Angle	
4	Nut	0.660Inches ± 0.010	0.670 0.650		
5	Nut	0.130Inches ± 0.010	0.140 0.120		
6	Nut	0.580Inches ± 0.002	0.582 0.578		
7	Nut	0.590Inches ± 0.010	0.600 0.580		

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17/3

APICAL
INDUSTRIES, INC.

ENGINEERING CHANGE NOTICE NO.

04227

SHEET 1 OF 2

DWG NO. 647.2500

REV: NC

PREPARED BY J. SOTO

DATE: 11/11/2013

EFFECT ON DWG
☒ INC. ☐ UNINC.

DWG TITLE: SKID SLEEVE

APPROVED BY:

ENGR

MFG

QC

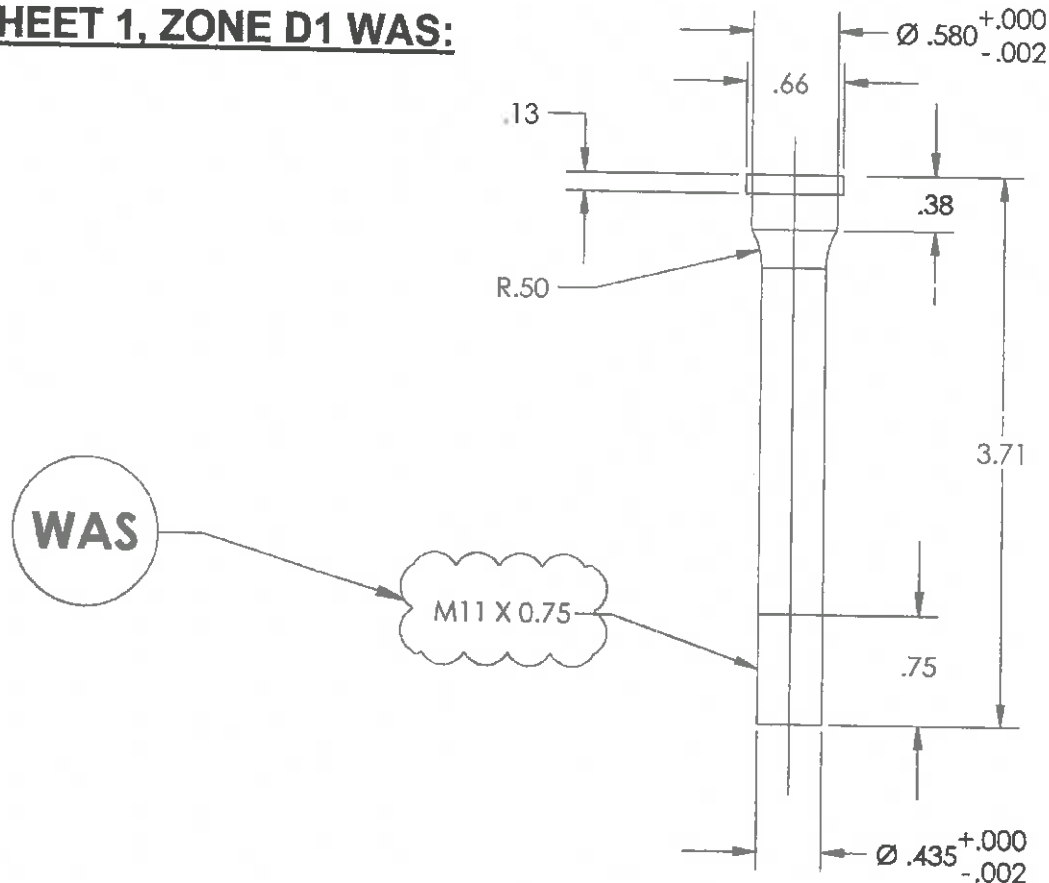
EFF. NEXT ORDER

TRANSACTION CODES (TC):
A-ADD
R-REVISE
C-CREATE
D-DELETE

REASON: REVISED THREAD DIMENSION FOR MACHINE USE. INCORPORATED ECN 02935.

ECR: 12-017

SHEET 1, ZONE D1 WAS:



DOCUMENTS EFFECTED:

☐ MDL ☐ INSTALL INSTRUCTIONS ☐ ICA ☐ FMS ☐ BOM

CHANGE CATEGORY

☐ MAJOR ☒ MINOR

DER REVIEW REQUIRED

☐ YES ☒ NO

SHEET 2, ZONE A5 WAS:

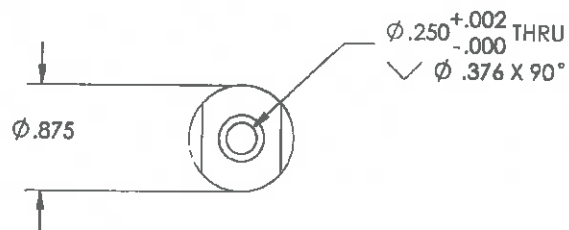
Ø .875

Ø .401 DRILL & TAP M11 X .075 THRU
✓ Ø .53 X 90°

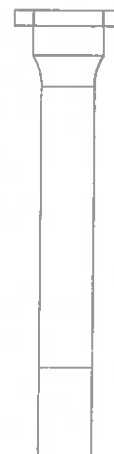
IS

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REV.	DESCRIPTION	DATE	APPROVED
1	LAST PROTOTYPE REVISION: PP1		M/C
M/C	INITIAL RELEASE	05/04/09	P. BRAVO
A	INCORPORATED ECH 02955, 64227	11/11/13	P. BRAVO

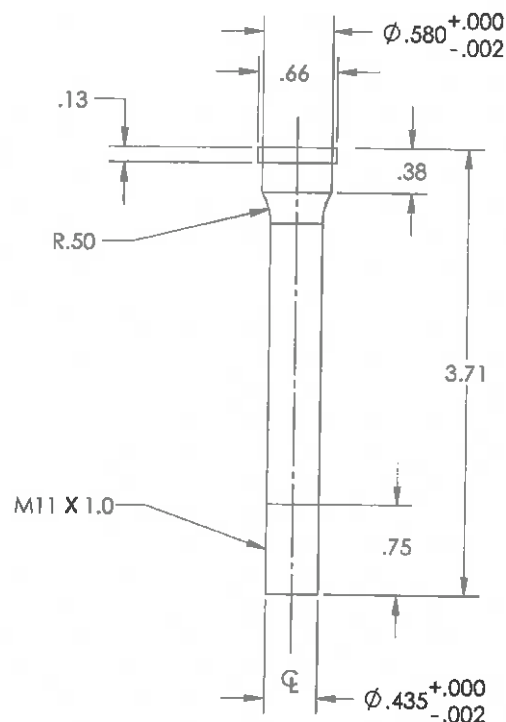


647.2510



NOTES:

- 1 MATERIAL: STAINLESS STEEL 17-4 PH, CONDITION: H1150
- 2 FINISH: PASSIVATE PER MIL-S-5002 TYPE 6
3. DEBURR AND BREAK ALL SHARP EDGES
4. IDENTIFY IAW MPP-120

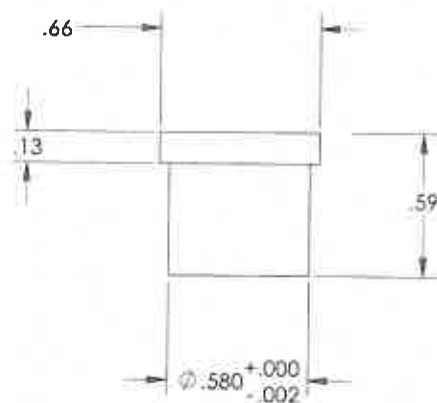
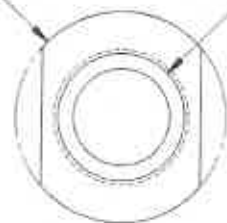


QTY	647.2511	NUT		
NEXT ASSY (S)	647.2510	SLEEVE		
647.1300	FIND #	PART #	DESCRIPTION	MAT'L SPEC.
PARTS LIST				
ORIGINAL DATE: 06-04-09				
DRAWN BY: J. GARDNER				
DRAWING APPROVAL: P. BRAVO				
CONTRACT No.				
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES				
TOLERANCES ARE: 2 PLACE DECIMALS $\pm .01$				
3 PLACE DECIMALS $\pm .005$				
ANGLES $\pm .5^\circ$				
SIZE	CAGE CODE	DWG. NO.	REV.	
8	Q7M26	647.2500	A	
SCALE: NONE			SHEET 1 OF 2	

APICAL INDUSTRIES
 2608 TEMPLE HEIGHTS DR.
 OCEANSIDE, CA, 92056-3512 (760) 724-5300

SKID SLEEVE

647.2511

[illegible]



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

PO042649



Supplier: GRO002-VC
Group Altech
2455 Halpern
St Laurent
QC
H4S 1N9 Canada
Phone: 514-335-3666
Fax: 514-335-3868

PO No: PO042649
PO Date: 2/19/19
Due Date: 2/26/19
Purchase Order
Revision:
Revision Date:
Ship-To Contact: Tsimiklis, ChrisoulaPhone:

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground
Pymt Terms: Net 60
Freight Terms:
Special Comments:

Items

Line Item	Job	Part	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	1270 Aberdeen St	647.2511	Nut Issue P/O: Pasivate as per MIL-S-5002 TYPE 6 Certificate of conformaty is required	Firmed	-	2/26/19	22 pcs	0 pcs	22 pcs	\$4.545454/pcs	\$100.00

22 x FEB 22 2019

Grand Total: \$100.00

Order Notes

Procurement Quality Clauses

A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)

A022 Apical Processing
A024 process certifications
A026 certification of material conformance

A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 2/20/19 10:50 AM dart.tsimiklis.chrisoula



Certificat de Conformité / Certificate of Compliance



0 1 7 0 1 4 - 1

2455, Rue Halpern | Saint-Laurent | Québec | H4S 1N9
 Tel: 514-335-3666 Fax: 514-335-3868
 www.groupaltech.com

Bon de Livraison / Packing Slip

017014- 1

Livré à / Ship to

DART AEROSPACE LTD
 1270 ABERDEEN STREET
 HAWKESBURY, ON, K6A1K7
 CANADA
 Tel.: 613-632-5200 Fax:

Client / Customer:

DART AEROSPACE LTD
 1270 ABERDEEN STREET
 HAWKESBURY, ON, K6A1K7
 CANADA
 BUYER:

Date expédition Ship date		Créé Par Generated By	Transport / No de Compte Courier / Acc. No.	Bon de commande Client Customer Purchase Order No.				
21-Feb-2019		SPARTAKOS BOUNTOURIS		042649				
#Ligne Line#	No. de Série / # Pièce Part Number /Line Item Details Job # / Ref #	Description pièce(s)	CATG. U/M	Comm. /Ordered	Exp/ Shipped	Qté NC/ No Qty	Qté Scrap/	À venir / Back Order
1	647.2511 Rev.	647.2511 01 -PASSIVATION-BICHROMATE [PASSIVATION BICHROMATE] TEST ONE PART FIRST REF:-PASSIVATION ASTM A380-PASSIVATION AMS 2700/00-P-35, PASSIVATION ASTM A967. Precleaning with rags and solvent if required remove any markings, paintor and heavy contaminaints. TERRY LINE	PASSIVATION CH	22	22	0	0	0

Notes Additionnelles / Additional Notes

1 small bag

Epaisseur réelle
Actual Thickness

Inspecteur Qualité
Quality Inspector

Réçu par
Received By

Nous certifions que les pièces énumérées ci-dessus ont été traitées en conformité avec votre commande et vos spécifications et rencontrent les exigences.
 Notre responsabilité financière et légale ne sera pas supérieure au montant de la facture issue.

We hereby certify that the parts listed above have been process in accordance with your purchase order and specifications and are in conformance with your requirements.
 Our financial and legal responsibility will not be higher than the amount of invoice.

Patrick Duval

From: Marcel Daviau
Sent: Tuesday, February 19, 2019 10:01 AM
To: Patrick Duval; John Chuprun
Cc: John Chuprun; Linda Lacelle; Pablo Bravo; Jean-Luc Menard
Subject: FW: 647.2511 Insert

Pat, please proceed to accept the NCR based on Engineering (PB) authorizing to manufacture to an obsolete drawing. Please ensure to attach a copy of the authorizing email to the NCR and allow parts to proceed only in the quantity necessary to fill the order.

Thanks

Marcel

From: Linda Lacelle <llacelle@dartaero.com>
Sent: Monday, February 18, 2019 2:59 PM
To: Pablo Bravo <pbravo@dartaero.com>
Cc: Jean-Luc Menard <jmenard@dartaero.com>; Frederick Leblanc <fleblanc@dartaero.com>; Marcel Daviau <mdaviau@dartaero.com>; Caitlin Crooks <ccrooks@dartaero.com>
Subject: Re: 647.2511 Insert

Thx Pablo..

JL/Marcel,
can we please get these out tomorrow?? customers orders have now been pushed twice..

L

From: Pablo Bravo
Sent: Friday, February 15, 2019 10:24:31 PM
To: Linda Lacelle
Cc: Jean-Luc Menard; Frederick Leblanc; Marcel Daviau; Caitlin Crooks
Subject: Re: 647.2511 Insert

Linda,
You are correct that getting the matching pair is important. Shipping parts to the previous revision is okay.

PABLO BRAVO
Director of Engineering – San Diego

DART AEROSPACE
T 1 760 724-5300 > 106
O 1 760 509-1606
F 1 760 509-1562
1 800 556- 4166
www.dartaerospace.com

On Feb 16, 2019, at 6:32 AM, Linda Lacelle <llacelle@dartaero.com> wrote:

guys, we need to know this asap...as well, customers that have the 647.2510's need the matching pair..

From: Jean-Luc Menard

Sent: Friday, February 15, 2019 2:38:51 PM

To: Pablo Bravo

Cc: Frederick Leblanc; Linda Lacelle; Marcel Daviau; Caitlin Crooks

Subject: 647.2511 Insert

Hi Pablo,

We have parts in stock of both 647.2511 and 647.2510 of an older Rev (the thread pitch is .75).

Is it acceptable to ship these parts at an older Rev??

Let us know pls,

Thx

JL

Jean-Luc Menard
Director of Operations

DART AEROSPACE

T 1 613 632-5200 > 227

F 1 613 632-5246

1 800 556- 4166

www.dartaerospace.com

<image001.png>

Entered: 9/2 Date: Oct 6/19



NCR No. 19-7552

WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

Route update only

Job: 189237		DISPOSITION		DEPARTMENT/PROCESS							
Part No. 647.2511		Rework ☐ Scrap ☐ Use-as-is ☒		Skid-tube ☐ Machining ☒ Large Fab ☐		Cross tube ☐ Small Fab ☐ Finishing ☐		Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐		Engineering ☐ Water Jet ☐ Supplier ☐ Quality ☐	
Date: FEB 22 2019		Sequence #: 170-QC 5		QTY Affected: 22				MRB (QSI042) FEB 22 2019			
Description Work Order Deviation				Disposition				Completed By 19/02-19			
- PARTS MADE TO AN OLDER REVISION WITH AN M11 X 0.75 THREAD. NEW PART HAS M11 X 1.0 THREAD.				- ACCEPTABLE AS PER ATTACHED E-MAIL.				Lead hand / Supervisor 19/07/22			
Root Cause				QC / QA Coordinator DAS 68 FEB 22 2019							
Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Presservation ☐ Material ☒ Product Improvement ☐ Process Improvement ☐ Human Factors ☐				FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☒ Finish ☐ Part Lost/Missing ☐ Misread ☐							
Other/Details:											